



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/628,159

07/28/2003

Stephen John Fedigan

TI-34824

4363

23494 7590 10/15/2009
TEXAS INSTRUMENTS INCORPORATED
P O BOX 655474, M/S 3999
DALLAS, TX 75265

EXAMINER

FAULK, DEVONA E

ART UNIT

PAPER NUMBER

2614

NOTIFICATION DATE

DELIVERY MODE

10/15/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspto@ti.com

Office Action Summary	Application No. 10/628,159	Applicant(s) FEDIGAN, STEPHEN JOHN	
	Examiner DEVONA E. FAULK	Art Unit 2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4,7,8 and 20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,7,8 and 21 is/are rejected.
- 7) ☒ Claim(s) 3 and 4 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. The indicated allowability of claims 8 and 21 is withdrawn in view of the newly discovered reference(s) to Son. Rejections based on the newly cited reference(s) follow.
2. The finality of that action is withdrawn because of the new rejections of claims 8 and 21.

Claim Rejections - 35 USC § 112

3. Claims 1 and 2 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 1 recites "...along a central axis.." and "...said first unit and said second unit disposed coaxially about an axis radially offset from said central axis.." The specification does not teach of a central axis or that the first and second unit are disposed about an axis radially offset from said central axis. Furthermore, the specification only teaches of one axis (22), not two.
4. Claims 1 and 2 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 recites "...along a central axis.." and "...said first unit and said second unit disposed coaxially about an axis radially offset from said central axis.." The examiner is not clear as to what is meant by axis radially offset

Art Unit: 2614

from said central axis. What is the central axis? The specification does not clearly identify what element reads on central axis. The specification only discloses only one axis (22). The examiner has essentially maintained the same rejection with regards to claims 1 and 2 until clarity is provided for the newly added claim language.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pulfrey (US 5,493,620) in view of Saik et al. (US 4,312,118).

Regarding claim 1, Pulfrey discloses an apparatus for measuring speaker cone displacement relative to a fixed position in an audio speaker having a voice coil aligned with the cone along an axis (cone 21, voice coil 30, Figure 2; column 2, lines 19-55; column 5, lines 5-15) with the speaker, the apparatus comprising:

(a) a variable reluctance sensor device (cone motion velocity sensing structure, 40; column 4, lines 53-61); said sensor device including a first unit fixed relative to said fixed position (annular cylindrical permanent magnet 28, Figure 2; column 5, lines 9-15), and the a second unit affixed to said speaker cone effecting relative motion between said first unit and said second movement through motion of said speaker cone at a position radially offset from said axis (voice coil 30; column 5, lines 5-20);

(b) a signal injecting circuit coupled for injecting a predetermined input signal into-said one of said first and second units (signal amplification channel 10, Figure 2; predetermined input signal is the input from input signal source at terminals 13 of the signal amplification channel; column 4, line 61-column 5, line 5); and

(c) a signal receiving circuit coupled with said one of said first and second units-for receiving a signal resulting from modulation of said input signal due to variation of reluctance of said sensor device caused by displacement of said first unit relative to said second unit and for generating an indicating signal based upon said resulting signal; at least one signal characteristic of said indicating signal being related with said cone displacement (active differentiating circuit 60, Figure 2 reads on signal receiving circuit as claimed; column 6, lines 6-13 and lines 34-45; sensing coil 47, Figure 2; column 6, lines 9-13).

Pulfrey teaches of a coil but fails to disclose that the coil is attached to or suspended from the cone. Saik discloses a coil suspended from a cone (coil 30 is suspended from cone 22; column 5, lines 2-6). It would have been obvious to modify Pulfrey so that the coil is attached to the cone for the benefit of securing the coil in the loudspeaker.

Art Unit: 2614

Regarding claim 2, Pulfrey as modified by Saik discloses wherein said first unit is comprises one of an electromagnetic coil structure and a core structure; and wherein said second unit comprises the other of said electromagnetic coil structure and said core structure (See Pulfrey as applied above to the rejection of claim 1). All elements of claim 2 are comprehended by the rejection of claim 1.

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pulfrey (US 5,493,620) in view of Saik et al. (US 4,312,118) in further view of Joseph et al. (US 4,360,707).

Regarding claim 7, Pulfrey as modified by Saik discloses wherein said first unit comprises one of an electromagnetic coil structure and a core structure; and wherein said second unit comprises the other of said electromagnetic coil structure and said core structure See Pulfrey and Saik as applied above to claims 1 and 5). All elements of claim 7 are comprehended by the rejection of claim 5.

8. Claims 8 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pulfrey (US 5,493,620) in view of Saik et al. (US 4,312,118) in further view of Son (US 7,110,564) .

Regarding claim 1, Pulfrey discloses an apparatus for measuring speaker cone displacement relative to a fixed position in an audio speaker having a voice coil aligned with the cone along an axis (cone 21, voice coil 30, Figure 2; column 2, lines 19-55; column 5, lines 5-15) with the speaker, the apparatus comprising:

Art Unit: 2614

(a) a variable reluctance sensor device (cone motion velocity sensing structure, 40; column 4, lines 53-61); said sensor device including a first unit fixed relative to said fixed position (annular cylindrical permanent magnet 28, Figure 2; column 5, lines 9-15), and the a second unit affixed to said speaker cone effecting relative motion between said first unit and said second movement through motion of said speaker cone at a position radially offset from said axis (voice coil 30; column 5, lines 5-20);

(b) a signal injecting circuit coupled for injecting a predetermined input signal into-said one of said first and second units (signal amplification channel 10, Figure 2; predetermined input signal is the input from input signal source at terminals 13 of the signal amplification channel; column 4, line 61-column 5, line 5); and

(c) a signal receiving circuit coupled with said one of said first and second units-for receiving a signal resulting from modulation of said input signal due to variation of reluctance of said sensor device caused by displacement of said first unit relative to said second unit and for generating an indicating signal based upon said resulting signal; at least one signal characteristic of said indicating signal being related with said cone displacement (active differentiating circuit 60, Figure 2 reads on signal receiving circuit as claimed; column 6, lines 6-13 and lines 34-45; sensing coil 47, Figure 2; column 6, lines 9-13).

Pulfrey teaches of a coil but fails to disclose that the coil is attached to or suspended from the cone. Saik discloses a coil suspended from a cone (coil 30 is suspended from cone 22; column 5, lines 2-6). It would have been obvious to modify Pulfrey so that the coil is attached to the cone for the benefit of securing the coil in the loudspeaker.

Pulfrey as modified fails to teach that the electromagnetic coil structure operates as at least part of a high pass filter having a corner frequency. Son discloses an electromagnetic coil structure that operates as at least part of a high pass filter (Figures 2 and 3; column 3, lines 38-52; column 4, lines 33-40). All filters implicitly have a corner frequency. It would have been obvious to modify Pulfrey as modified to have the electromagnetic coil structure operate as at least part of a high pass filter for the benefit of obtaining sound output by which lower frequencies are interrupted to improve sound quality (column 3, lines 25-35).

Regarding the input signal having a frequency below the corner frequency language, the examiner asserts that this is a matter of design choice. It would have been obvious to modify Pulfrey as modified so that the input signal has a frequency below the corner frequency for the benefit of meeting a design specification.

Claim 21 is rejected using Pulfrey, Saik, Son and design choice as applied above to claim 8.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DEVONA E. FAULK whose telephone number is (571)272-7515. The examiner can normally be reached on 8 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devona E. Faulk/
Primary Examiner, Art Unit 2614